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SOLID WASTE MANAGEMENT BUREAU
Division of Environmental Sciences
Montana State Department of Health and Environmental Sciences

a bi-monthly publication

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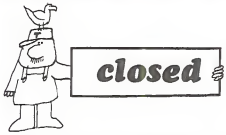

TERRY TRASH CLOSES A DUMP!

Who would have thought that closing a dump could be so much trouble? You see, my county is involved in a multi-county planning effort to solve our garbage problems. It looks as though we'll be developing an area-wide sanitary landfill to serve the area. So we started thinking about how we'll go about closing that unsightly, open dump at the edge of town.

We weren't really all that worried until the last few weeks with the news shows carrying so many stories about what has happened to waste that was buried and abandoned years ago. You know, they could cause law suits and we owe it to the people of my county to solve the problem now - not to have it show up in ten to fifteen years.

To find out what we were facing, we asked the Solid Waste Management Bureau for help. They gave us a stack of documents which spelled out potential problems, special considerations, and general procedures. Then they sat down with us and reviewed the specifics of our dump and helped us develop a step-by-step plan to close it properly.

I thought the outline of our plan might help other counties or towns in the state. Also, I've included some of the detailed information which the state gave us to study. Our plan was set up in three phases although some of them overlapped in time.

One thing I can assure you: there's lots more information about closing dumps and the people at the Solid Waste Management Bureau are more than willing to help you. Just to give you an idea of some of the things you'll have to consider, I had my secretary type up some of the information for you. Start reading!

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CITIES, COUNTIES AND STATE WORKING TOGETHER IN A UNIQUE PARTNERSHIP

Over $186,000 of the $200,000 appropriated by the last state legislature for solid waste management planning by local communities has been awarded by the Solid Waste Management Bureau. The grants are assisting cities and counties with detailed site investigations, studies of solid waste generation in the area and review of the alternatives to present waste management programs and facilities.

One of the most significant aspects of these grants is that they are proving that city and county governments can work together on a common problem to serve their citizens better. It also is demonstrating that there can be a partnership between local levels of government and a state agency since the Solid Waste Management Bureau is closely involved in each of the planning efforts.

Those areas involved in planning also will be considering the necessity of upgrading or closing dumps which are now conditionally licensed. As many as 30 small, inefficient or environmentally damaging dumps may be closed in favor of establishing a safe, properly operated areawide landfill. The problems of closing a dump are detailed in an adjacent article.

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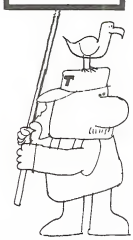
OUR PLAN



PHASE 1

1. Establish a new site or disposal method.
2. Develop a closure plan, timetable and budget.
3. Inform the public of the plan, purpose and reasons.
4. Close access to the old dump by putting a locked gate across the entrance. Also put up signs giving directions to the new disposal site.

PHASE 2

1. Begin closure operations by extinguishing all fires.
2. Consolidate all wastes and compact them. Provide for protection of water sources.

PHASE 3

1. Determine final use of area. (Actually this is done with the first phase.)
2. Consistent with the proposed use, choose final soil cover and depth as well as vegetation to be used.
3. Review final grading and cover plans in terms of gases which will be produced by the decomposition of the garbage and drainage of water.
4. Develop a five-year maintenance plan to correct problems which may develop due to settling.

CLOSING A DUMP (continued)

Decomposition and Gas Generation

Little information is available on the decomposition of buried material in a sanitary landfill. The rate of decomposition is dependent on the moisture content and generally takes place at a very slow rate.

Decomposition of the wastes produces gases, principally methane, carbon dioxide, nitrogen, hydrogen and hydrogen sulfide. The rate of gas production usually reaches a peak within the first two years and slowly tapers off. Such gases can accumulate in structures or soil, cause explosions and stunt or kill vegetation. Design of gas controls should, therefore, conform with the planned use of the completed landfill.

Settlement

Settlement of the landfill is dependent on the depth of the fill, composition, compaction of the material, moisture content and other factors. Because of these many variables, a fill may settle as much as 33 percent.

Settling can produce wide cracks in the cover material that expose the wastes to rats and flies, allow water to infiltrate and permit gas to escape. Settling may form depressions that permit water to pond and infiltrate the fill. Because every landfill settles, its surface should be inspected periodically and soil added and graded when necessary.

Protection of Water Quality

If the dump is in a marshland or an area where the ground water or surface waters have been contaminated, remedial action should be taken. The waste and water can be separated by diverting the flow of water or removing the waste from the watercourse.

Cover Material

Cover material should be selected according to its ability to limit the access of vectors to the solid waste, control moisture entering the fill, control the movement of gas from the decomposing waste, provide a pleasing appearance, control blowing paper and support vegetation.

Not all soil types perform these functions equally well. While the soil is usually selected from the types available nearby, consideration needs to be given to its suitability before using it as cover material.

The soil used for final cover influences the choice of vegetation. If the final cover material is thin, only shallowrooted grass and shrubs should be planted. The decomposing waste may be toxic to plants whose roots penetrate through the bottom of the final cover.

The most commonly used vegetation is grass. Most pasture and hay grasses are shallowrooted and can be used on a landfill having only 2 ft. of final cover, but alfalfa and clover need more.

In general, landfills should not be irrigated because the water may infiltrate and leach the fill. Also, when preparing for cultivated crops, the design must provide for gas venting via gravel trenches or pipes.

Ultimate Use of Closed Dump

Completed landfills have been used for agricultural purposes as well as for recreational ends - parks, playgrounds or golf courses. Parking and storage areas are other final uses. Because of settling and gas problems, construction of buildings on completed landfills generally is avoided.

Publications to Help Plan a Dump Closing

Sanitary Landfill Facts, U.S. Department of Health, Education and Welfare, Public Health Service Publication No. 1792;

Sanitary Landfill: Design and Operation, U.S. Environmental Protection Agency;

Decision Makers Guide in Solid Waste Management, U. S. Environmental Protection Agency.

All of the above are available from the Solid Waste Management Bureau as well as other material to help cities and counties plan for closing an improperly located or operated dump.

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CITIES, COUNTIES & STATE (continued)

The counties and municipalities which have received grants to date and are in the process of studying their solid waste management problems are:

1. The counties of Sheridan, Daniels, Roosevelt, and the Fort Peck Reservation including the towns of Wolf Point, Poplar, Culbertson, Westby, Bainville, Scobey, Flaxville, Brockton, and Outlook;
2. Phillips county including the towns of Saco and Dodson;
3. Valley County;
4. Richland county including Sidney and Fairview;
5. Toole County;
6. The counties of Cascade, Choteau and Teton including the towns of Dutton, Belt, Cascade, Neihart, Geraldine and Great Falls;
7. The counties of Broadwater, Jefferson and Lewis and Clark including the communities of Helena, East Helena, Boulder and Townsend;
8. Lincoln County;
9. Sanders County;
10. Madison and Gallatin counties and part of Yellowstone Park including the towns of Ennis, Virginia City, Twin Bridges, Sheridan and West Yellowstone.

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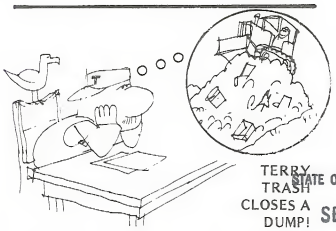

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